REMARKS

As noted previously, Applicant appreciates the Examiner's thorough examination of the subject application.

Claims 7-9 and 49-120 remain in the subject application. Claims 1-6 and 10-48 have been previously cancelled. Claims 7-9, 49-59 and 94-103 are withdrawn from consideration as being directed to non-elected inventions. In the non-final Office Action mailed 11 July 2008, claims 60-93 and 104-120 were rejected on various statutory grounds, as described in further detail below. Claims 67, 110, and 113 are amended herein to remedy minor grammatical issues. No new matter has been added.

Based on the foregoing amendments and the following remarks, reconsideration and further examination are requested for the subject application.

Oath/Declaration

Concerning items 1-2 of the Office Action, the Examiner stated that Applicant's previously submitted declaration under 37 CFR § 1.132 filed 07 April 2008 was insufficient to overcome the previous rejection of claims based upon applicant admitted prior art as shown in FIG. 1 in view of Holt. The Examiner stated specific reasons of insufficiency in sub-items 1(a)-1(p). In response, Applicant will shortly be submitting a revised declaration under 37 CFR § 1.132 by representative, Leslie B. Tyler, CEO and President of the assignee of the present application. The revised declaration will include statements in response to each of the Examiner's reasons in sub-items 1(a)-1(p).

Claim Rejections – 35 U.S.C. § 112

Concerning items 3-4 of the Office Action, claim 90 was rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. More specifically, the Examiner stated that claim 90 states that "the digital matrix unit, the difference processing unit, and the sum channel processing unit are included on a single integrated circuit."

For the rejection, the Examiner also stated that in "the response filed 4/27/2008 [sic], on p. 24, applicant admitted that a digital BTSC employing the claimed subject matter of the present application requires two DSPs", and then concluded "[t]herefore, applicant fails to provide an enablement for the claimed limitation of claim 90. Applicant traverses the Examiner's rejection and requests reconsideration for the following reasons.

Applicant notes as a threshold matter that the statement referred to in Applicant's paper filed 07 April 2008, indicated that as of the time of filing the priority document for the parent application, i.e., in 1996, two digital signal processors were utilized within the scope of the claimed invention.

The rejection notwithstanding, Applicant submits that the two statements adduced by the Examiner are not mutually exclusive, i.e., it is possible for the claimed invention to provide two DSPs within a single integrated circuit, e.g., within the scope claim 90. Thus, it is respectfully submitted that claim 90 is enabled and Applicant accordingly requests withdrawal of the rejection of claim 90 under 35 U.S.C. § 112, first paragraph.

Claim Rejections – 35 U.S.C. § 103

Claims 60-77, 83-84, 86-89, 91, 109, 110, 112-115, and 119

Concerning items 5-6 of the Office Action, claims 60-77, 83-84, 86-89, 91, 109, 110, 112-115, and 119 were rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant admitted prior art as illustrated in FIG. 1 ("APA") in view of U.S. Patent No. 4,803,727 to Holt et al. ("Holt"). Applicant traverses the rejection and requests reconsideration for the following reasons.

For a rejection under 35 U.S.C. § 103(a), the cited reference(s) must teach or suggest each and every limitation of the claim(s) at issue and proper motivation must exist to combine or modify the teachings of the references in the way proposed for the rejection. Stated another way, a conclusion of obviousness requires that the reference(s) relied upon be enabling in that it/they

put the public in possession of the claimed invention and proper motivation must exist to combine or modify the teachings of the references in the way proposed by the Examiner.

At least one of these requirements are not met in this case, as will be explained. In particular (and without acceding the propriety of the motivation proffered by the Examiner), the cited references fail to teach or suggest each and every limitation of the claims at issue. More specifically, the cited art fails to teach or suggest systems or methods for producing a digital composite modulated BTSC signal that utilize "a digital BTSC encoder arranged so as to generate a digital BTSC encoded signal," as recited, e.g. in claim 87 (representative of the independent claims of the subject application).

The APA does not teach or suggest such limitation, as the Examiner admits, and neither does Holt, as will be explained.

As a threshold matter, it is noted that the BTSC signal transmitted and received by the claimed embodiments of the subject application is purely analog. The signal transmitted and received by Holt is, as the Examiner correctly notes, a digital signal.

Holt teaches an analog matrix (1 and 2) coupled to a digital filtering system (13) combined with a digital transmission system (blocks 17 and 19 and the connection 18 between them), and a reciprocal series of digital upsamplers and analog matrix to recover a facsimile of the original input signals. The main benefit of the digital bandlimiting filters is to reduce the bandwidth of the signal, not to avoid noise that might be introduced by using similar bandlimiting filters executed with analog circuitry. Importantly, Holt's transmission system is entirely digital, as stated previously.

Holt teaches an encoder including a L+R path and a L-R path but this is the only real similarity with Applicant's claimed encoder/encoding. Beyond that, the systems and methods of Holt and those of Applicant's claims are fundamentally different.

In making the rejection the Examiner states that one of ordinary skill in the art would have been motivated by the APA and Holt to arrive, e.g., at Applicant's system of claim 87, to

ensure matching of the signals in the two paths. Applicant traverses this statement, as what the Examiner may have failed to appreciate is that in order to satisfy the text of Applicant's claim ("producing a digital composite modulated BTSC signal) much more than simple matching of the signals in the two paths is required.

In fact, there is another dimension, which was explained in Applicant's previous paper by references to the s- and z-plane mappings (which the Examiner seems to dismiss), in that the digital BTSC realization must match the analog BTSC prototype. Especially given the time-varying nature of the BTSC companding algorithm, this is neither taught nor suggested by Holt. And, such matching is an inherent part of Applicant's claims, in that every time the limitation "BTSC" is recited, it is clearly implied that the digital realization matches to a reasonable degree the analog prototype; or, if the L-R channel does not match sufficiently, that the L+R channel is appropriately warped to compensate. Stated another way, the phrase "digital composite modulated BTSC signal" implies a matching of analog to digital realizations, which is totally missing from Holt. On this point, if the Examiner is amenable, Applicant would be willing to add such an express clarifying limitation to the claims.

Regarding the Examiner's statement (about claims 60-72, 82-84, 86, 88, 89, 91, 109, 112-114, and 119) that "Holt teaches that the left and right signals forming the sum and difference first, and then convert to digital signals..." Applicant respectfully disagrees. In making such an assertion, the Examiner seems to be claiming that it's obvious to convert the input signal to digital either in L & R form, or in L+R and L-R form. At one extreme, there are, in fact, implications which would only be clear to one who possesses extraordinary skill in the art to the choice of whether to implement the matrix in digital or analog format. Generally, and contrary to the Examiner's statement, it does in fact lead to better results to convert to digital in L and R format, thus performing the matrix operation in digital.

Importantly, Holt (as was stated in Applicant's previous paper) teaches a digital transmission scheme for the L+R and (differently band-limited) L-R signals. In contrast, the claimed invention involves an additional conversion step, taking the digital L+R/L-R signals, after formatting them into BTSC-compliant ones (in digital form) and converting them back to

analog. This element is totally missing in Holt. The Examiner's comments in this section are totally focused on ADCs, and fail to mention the essential step of converting back via some sort of DAC to analog again. It is noted that in making the rejection, the Examiners refers to "without an A/D converters." In the next sentence, she references "any well-known ADC." The Examiner concludes with "So the signals (sum and difference signals), used for transmission (sic) stereophonic sound source, after the digital matrix are the same as Holt." The Applicant respectfully disagrees with this logic and reminds the Examiner that, in fact, the signals used by the claimed invention are analog signals, while those in Holt are digital. This is a crucial difference between Holt and the claimed invention, which functions to mimic the inherently analog BTSC system, and such is totally missing from Holt and the other cited prior art.

Thus, because the APA and Holt (whether each is considered alone or in any combination) do not teach or suggest all of the limitations of claims 60-77, 83-84, 86-89, 91, 109, 110, 112-115, and 119, the references form an improper basis for a rejection of the claims under 35 U.S.C. § 103(a). Applicant requests the removal of the rejection accordingly.

Claims 78-81, 85, 104, 105-108, 111, 116-118, and 120

Concerning item 7 of the Office Action, claims 78-81, 85, 104, 105-108, 111, 116-118, and 120 were rejected under 35 U.S.C. § 103(a) as being unpatentable over APA in view of Holt, both cited previously, and in further view of U.S. Patent No. 4,809,274 to Walker et al. ("Walker"). Applicant traverses the rejection and requests reconsideration for the following reasons.

As noted previously, for a rejection under 35 U.S.C. § 103(a), the cited reference(s) must teach or suggest each and every limitation of the claim(s) at issue and proper motivation must exist to combine or modify the teachings of the references in the way proposed for the rejection. These requirements are not present for this situation, as will be explained below.

One element of the claims at issue includes an adaptive weighting signal weighting system or use of such. Such limitations are not taught or suggest by the cited prior art.

For the rejection, the Examiner states that "Walker suggests an adaptive weighting system to correct errors included by the compression and expansion processes (col. 1, lines 56-58)." Applicant respectfully takes issue with the Examiner's characterization of Walker and submits that in making the rejection the Examiner is mistaken in at least three fundamental ways.

In the first place, the system described by Walker is intended for use in systems which transmit and receive digital data. In contrast Applicant's claim systems and methods transmit and receive data in the analog domain. It is noted that the cited text of Walker actually states the following: "The present invention provides a system for processing the digital audio signal samples to correct errors inducted by the compression and expansion processes." Review of Walker reference reveal no teaching of suggestion of an adaptive weighting signal weighting system or use of such.

Secondly, the purpose of the Walker invention is to correct for errors induced by the digital compression system itself, whereas Applicant's claimed invention reduces perceived noise introduced by the analog transmission channel. Thirdly, the operation of the Walker system differs so significantly from the claimed invention, as will be outlined below, that Walker teaches away from Applicant's claims, e.g., as recited in claims 78-81, 85, 104, 105-108, 111, 116-118, and 120.

To elaborate, as noted in Walker (col 1, lines 11-14), "The present invention [Walker]…is particularly directed to improved companding of digital audio signals." (Emphasis added) This means that binary data is transmitted ("transferred", in the words of Walker), rather than analog signals as in the Applicant's claimed invention. This can be seen, too, in Walker, Figures 1 and 2. From these figures it can be seen that analog audio is fed to the transmitting system (Figure 1) where it is converted by the A/D block 13. The resulting digital signal is processed according to Walker, and remains in the digital domain as it exits the Interleaver and Parallel to Serial Conversion block 28 for transmission ("transfer"). In Figure 2, the received data remains in digital form as implied by the fact that the first block is a Deinterleave and Serial to Parallel Conversion block 30 which operates on digital data.

On the other hand, as noted throughout the present disclosure, while Applicant's claimed invention converts analog audio signals to digital in order to digitally compress the signals according to the BTSC system, the resulting signals are converted back to analog for transmission and reception in order to be in a form compatible with BTSC-capable television receivers. Again, as shown and described in the subject application, the compressed and transmitted signal can be re-converted to digital format for expansion (de-compression) according to the BTSC system at the television receiver.

That the transmitted signal is in analog format is not a trivial difference between Walker and the claimed invention. Walker depends on transmitting in the *digital* domain in order for the inventive principles to be operative. On the other hand, the claimed invention is intended for transmission of a composite analog signal. This difference will become more apparent in the following passages.

Walker attempts to overcome a difficulty associated with systems which transmit and receive companded digital audio, namely that, "By virtue of the truncation and appending steps in the respective compression and expansion process, errors are inevitably induced in the reproduced digital audio signal samples." (Walker, col 1, lines 50-53). Walker proposes, "...a system for processing the digital audio signal samples to correct errors induced by the compression and expansion process." (Walker, col 1, lines 56-58). To accomplish this, Walker states that, "These errors are calculated prior to compressing the samples. Such errors are calculated in accordance with the predetermined compression process and the predetermined expansion process; and the digital audio signal samples are corrected in accordance with such calculations prior to compression." (Walker, col 1, lines 60-64).

On the other hand, Applicant's claimed invention provides various inventive techniques for implementing digital circuits and systems according to the BTSC standard, both compressing and expanding (de-compressing). In contrast to Walker, the particular type of signal compression and expansion utilized by the claimed invention for the BTSC standard insures that the signal-to-noise ratio of the entire stereo audio signal is maintained at acceptable levels. And unlike

Walker, there is no attempt in or requirement for the claimed invention to correct, in a "pre-calculated" manner, for errors resulting from the compression and decompression itself.

Operationally, there is very little similarity between Walker and Applicant's claimed invention. Walker assumes the transmission and reception of digital audio data. The claimed invention, in contrast, functions in conjunction with transmission and reception in the analog domain. Walker seeks to improve performance in digital transmission systems where bandwidth is limited. The claimed invention, in contrast, seeks to reduce the susceptibility of a transmitted analog signal to noise induced by the transmission medium. The foregoing include just some of the overarching differences between Walker and the claimed invention. Because of such, one skilled in the art would understand Walker as teaching away from Applicants claims, including claims 78-81, 85, 104, 105-108, 111, 116-118, and 120.

Consequently, the cited combination fails to teach or suggest each and every limitation of claims 78-81, 85, 104, 105-108, 111, 116-118, and 120. Moreover, Walker itself teaches away from the Examiner's proposed modification/combination. As a result, the APA, Holt , and Walker (whether each is considered alone or together in any combination) form an improper basis for a rejection of claims of 78-81, 85, 104, 105-108, 111, 116-118, and 120 under 35 U.S.C. § 103(a), and Applicant requests the removal of the rejection accordingly.

Response to Arguments

Concerning item 12 of the Office Action, the Examiner is invited to call the undersigned to discuss specific details of Applicant's specification, e.g., concerning the digital encoder and/or mitigation of frequency warping, for possible additional claim limitations, should the Examiner believe that a corresponding amendment would facilitate prosecution of the subject application.

Summary

Accordingly, claims 60-93 and 104-120 are believed to be patentable, and a Notice of Allowance is therefore earnestly solicited for the subject application.

Authorization is hereby given to charge any fees which may be due, including those for a Petition for Extension of Time (three months) under 37 CFR § 1.136, or credit any overpayment, to Deposit Account Number 50-1133.

Respectfully submitted,

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/Toby H. Kusmer/

Toby H. Kusmer, PC
Reg. No.26,418
McDERMOTT WILL & EMERY LLP
28 State Street
Boston, Massachusetts 02109
Telephone: (617) 535-4065
Facsimile: (617) 535-3800
E-mail: tkusmer@mwe.com